EVIDENCE

Workers In Windowless Offices Lose 46 Minutes Of Sleep A Night

TIME TO START PETITIONING FOR THAT CORNER OFFICE.

Nothing tops an office with a door on the universal workplace wish list, but a desk near a window that lets in natural light probably ranks a close second. Outside views are often badges of seniority or achievement in the work world--understandably, given that they're in short supply. But new evidence suggests employers should look at daylight exposure less as a mark of accomplishment and more as a matter of public health.

"EMPLOYERS SHOULD LOOK AT DAYLIGHT EXPOSURE LESS AS A MARK OF ACCOMPLISHMENT AND MORE AS A MATTER OF PUBLIC HEALTH."

So says an interdisciplinary team of architects and medical researchers that recently conducted a small case study comparing people exposed to natural light at their jobs with those who aren't. The window workers scored better on common self-report health and sleep surveys; they also slept 46 minutes more a night, on

average, as measured by a sleep monitor. The findings will be reported in the *Journal of Clinical Sleep Medicine*.

"We really wanted to look at some health issues related to lack of natural light in people's lives in general," Mohamed Boubekri, study leader and architectural scholar at the University of Illinois, told Co.Design. "The reason why we selected office buildings is because ... that's where most of us spend a good chunk of our lives."

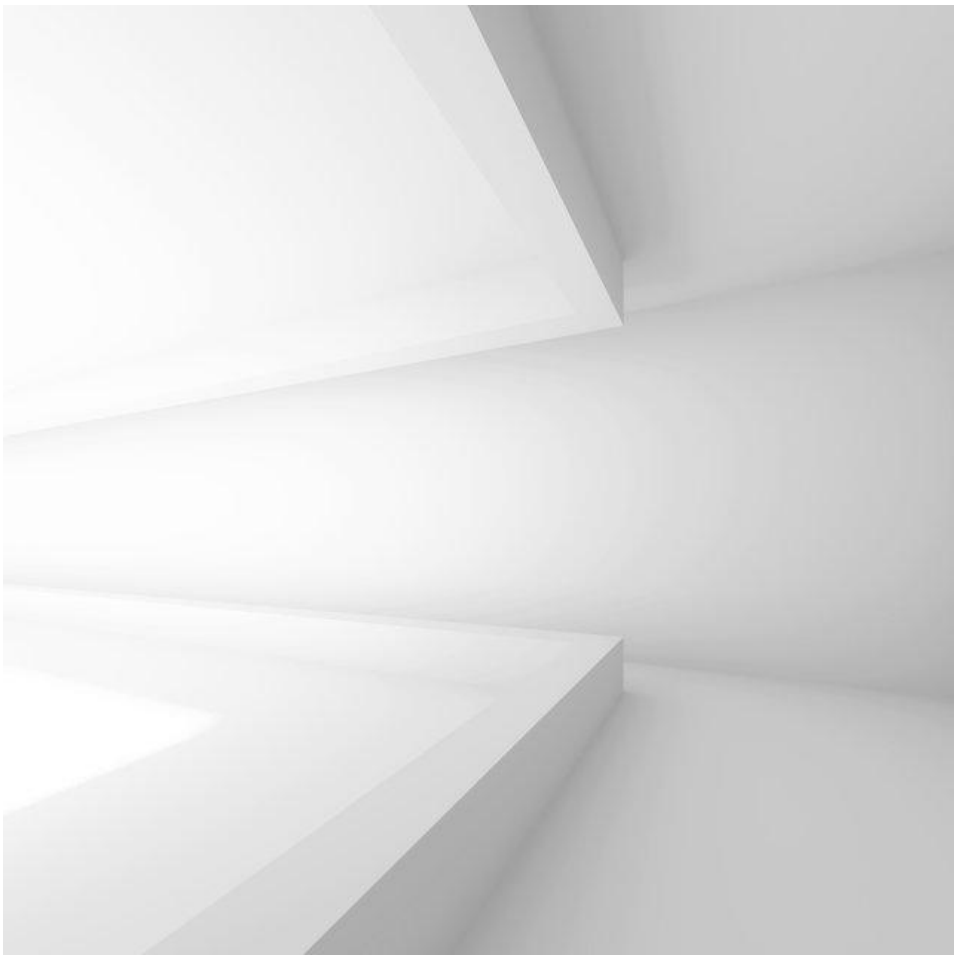
The study found that 27 workers who sat in windowless offices (or so far from a window as to get no natural light) scored worse than 22 workers who did get daylight on all eight dimensions of a health survey known as the Short Form 36. The windowless group fared significantly worse on two particular areas, including "vitality." Workers without

daylight exposure also showed worse overall sleep quality on a well-established self-report sleep index.

To go beyond self-report measures, Boubekri and collaborators arranged for 21 of the study participants to wear a watch capable of tracking light exposure and activity patterns. These actigraphy measures confirmed that the windowless workers received less daylight, were less physically active during the work day, and slept an average of 46 minutes less on work nights. Windowless workers also fared worse on five other sleep measures, including sleep fragmentation (or waking up during the night), though these differences weren't statistically significant.

"THE HEALTH BENEFITS OF EXPOSURE TO DAYLIGHT DURING THE WORK DAY EXTEND BEYOND THE WORK WEEK."

Interestingly, window workers slept more soundly than windowless workers on *non-work* nights--roughly 8.5 hours versus 6.5 hours--according to the actigraphy measures. And workers in the window group also received significantly more natural light than those in the windowless group *after work and on free days*. That finding caught the researchers by surprise and is tough to explain, but Boubekri speculates that workers who get daylight at the office may have more energy to go outside during their off time.



Overall, the findings suggest that the health benefits of exposure to daylight during the work day extend far beyond quitting time and even beyond the work week. In addition to more overall light exposure, these workers sleep better, seem more active, and have higher quality-of-life ratings than those who work in artificial light all day. The source of the sleep troubles, in particular, might be disruption of their circadian rhythms--the internal clocks that operate best when exposed to sufficient daylight.

"Some say we spend 90% of our lives indoors," says Boubekri, who's also written a book on the role of lighting in architectural design. "It's very, very significant."

The new findings extend what little research already exists on daylight and worker health, including a 1997 study that looked at lighting as a matter of "preventive medicine" and challenged designers to improve the situation. That work proposed naming the problem "ill-lighting syndrome" to draw more attention to it. Evidently the label never stuck, but more architects and design critics have sounded the alarm of late.

"COMMERCIAL BUILDINGS WITHOUT WINDOWS ARE WORTH AN ESTIMATED 20% LESS PER SQUARE FOOT."

Writing earlier this year in the magazine *Architectural Lighting*, Kevin Van Den Wymelenberg of the University of Idaho's Integrated Design Lab championed better daylighting not only for the purposes of better health and productivity, but real estate value. (Commercial buildings without windows are worth an estimated 20% less per square foot, though they cost more to build.) The energy savings are also significant, though energy-efficient bulbs have made this point less powerful in recent years.

Boubekri says designing well-lit buildings isn't nearly as much of a challenge as convincing designers it's important to do. "In an era where we're trying to limit consumption of fossil energy resources, we really should be thinking in a different way about these things," he says. "Not just using electric light to light our lives."

[Image: Windowless office via Shutterstock, Inline: Ainsley's basement office in the West Wing]

ERIC JAFFE

Eric Jaffe writes about cities, history, and behavioral science.
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Perhaps the demographics of those working in windowless environments (ie. cubicle farms) could explain some of the sleep differences. That 6.5 hours of sleep on non-work nights reads a lot like youthful sleeping patterns when compared with the 8.5 for those working with windows.

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